Amendments to the Claims:

This listing of claims replaces, without prejudice, all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended) A method of controlling cathodic protection being ~~applied~~ effected to a metal structure ~~having a surface~~ disposed in an electrolytic environment comprising:

   electrically connecting a metal coupon to ~~the surface of~~ the metal structure, wherein the metal coupon defines a simulated crevice;

   positioning the metal coupon at a predetermined position relative to the surface of the metal structure and within the electrolytic environment;

   applying a cathodic protection agent to the surface of the metal structure to effect cathodic protection of the surface of the metal structure;

   measuring a cathodic protection indication ~~proximate to the metal coupon~~ within the crevice;

   comparing the cathodic protection indication with a predetermined value; and

   adjusting the cathodic protection agent being applied to ~~the surface of~~ the metal structure in response to the comparison.

2. (original) The method as claimed in claim 1, wherein the cathodic protection agent is an electric current.

3. (currently amended) The method as claimed in claim 1, wherein the cathodic protection agent is a chemical ~~composition~~ treatment agent.

4. (original) The method as claimed in claim 3 , wherein the chemical composition has a tendency to effect alkaline conditions at ~~the surface of~~ the metal structure.

5. (original) The method as claimed in claim 1, wherein the predetermined position is in close proximity to the metal structure.

6. (original) The method as claimed in claim 1, wherein the electrolytic environment is selected from the group consisting of: a subsurface soil environment and an aqueous solution.

7. (withdrawn) A system for controlling the efficacy of cathodic protection being applied to a metal structure disposed in an electrolytic environment comprising:

   means for applying an electrical current to the metal structure to effect cathodic protection of the metal structure;

   means for measuring the efficacy of the cathodic protection, said means for measuring being electrically connected to the metal structure; and

   a passage for receiving movement of the means for measuring to effect positioning of the means for measuring at a predetermined position relative to the metal structure.

8. (withdrawn) The system as claimed in claim 7, wherein the means for measuring the efficacy of the cathodic protection includes a means for simulating the cathodic protection of a crevice of the metal structure.

9. (withdrawn) The system as claimed in claim 8, wherein the means for measuring the efficacy of the cathodic protection further includes a means for sensing a cathodic protection indication of the means for simulating.

10. (withdrawn) The system as claimed in claim 9, wherein the means for simulating comprises a metal coupon.

11. (withdrawn) The system as claimed in claim 10, wherein the metal coupon defines a simulated crevice.

12. (withdrawn) The system as claimed in claim 11, wherein the metal coupon includes first and second opposing flanges joined by a web, such that the simulated crevice is defined by the space between the first and second flanges.

13. (withdrawn) The system as claimed in claim 12, wherein the coupon is electrically coupled to the metal structure.

14. (withdrawn) The system as claimed in claim 13, wherein the means for sensing senses the cathodic protection indication in the crevice.

15. (withdrawn) A system for effecting non-destructive testing of a characteristic of a target disposed in an electrolytic environment comprising:

means for effecting the non-destructive testing including a radiation transmitter for irradiating the target, and a receiver for receiving a response from the target to the radiation; and

a passage for receiving movement of the receiver to effect positioning of the receiver at a predetermined location relative to the target.

16. (withdrawn) The system as claimed in claim 15, wherein the target is a metal structure.

17. (withdrawn) The system as claimed in claim 16, wherein the target is a metal structure having a surface disposed in an environment which is not conveniently accessible.

18. (withdrawn) The system as claimed in claim 16, wherein the target is a metal structure having a surface submerged in an aqueous electrolytic environment.

19. (withdrawn) The system as claimed in claim 18, wherein the target is a metal structure having a surface submerged in an electrolytic soil environment.

20. (withdrawn) The system as claimed in claim 18, wherein the target is a metal structure having a surface submerged in an aqueous solution.

21. (withdrawn) A system for measuring a characteristic of a metallic structure disposed in an electrolytic environment comprising:

means for sensing the characteristic of the metal structure; and

a passage for receiving movement of the means for sensing to effect positioning of the means for sensing at a predetermined position relative to the metal structure.

22. (withdrawn) The system as claimed in claim 21, wherein the means for sensing senses an electrical potential of the metal structure.

23. (withdrawn) A system for mitigating stray current discharging to or being discharged from a metal structure disposed in an electrolytic environment comprising:

a means for predetermining a location of stray current discharge;

a means for mitigating stray current discharge; and

a passage for receiving movement of the means for mitigating to effect positioning of the means for mitigating at the predetermined location.

24. (new) The method as claimed in claimed 1, wherein the at least one cathodic protection indication includes pH and electric potential.

25. (new) The method as claimed in claim 1, further comprising:

measuring an electric potential proximate to the metal coupon and outside the crevice; and

comparing the measured electric potential proximate to the metal coupon and outside the crevice with a respective predetermined value to provide a further comparison;

wherein the step of adjusting the application of the cathodic protection agent is also in response to the further comparison.

26. (new) The method as claimed in claim 1, wherein the metal coupon includes first and second opposing flanges joined by a web, such that the simulated crevice is defined by the space between the first and second flanges.

27. (new) The method as claimed in claim 1, wherein the positioning of the metal coupon is effected by moving the metal coupon through a passage.

28. (new) A method of controlling cathodic protection being effected at the surface of a metal structure disposed in an electrolytic environment comprising:

electrically connecting a metal coupon to the metal structure, wherein the metal coupon defines a simulated crevice;

positioning the metal coupon at a predetermined position proximate to the surface of the metal structure and within the electrolytic environment;

applying a cathodic protection agent to the surface of the metal structure to effect cathodic protection of the surface of the metal structure;

measuring at least two cathodic protection indications within the crevice;

comparing each of the cathodic protection indications with a respective predetermined value; and

adjusting, automatically, the cathodic protection agent being applied to the surface of the metal structure in response to each of the comparisons.

29. (new) The method as claimed in claim 28, wherein the cathodic protection agent is a direct electric current.

30. (new) The method as claimed in claim 28, wherein the cathodic protection agent is an electrolyte.

31. (new) The method as claimed in any of claims 29 and 30 , wherein the direct current passing through the electrolyte has a tendency to effect polarization and alkalinity at the surface of the metal structure.

32. (new) The method as claimed in claim 31, wherein the cathodic polarisation of the metal structure surface is improved by the addition of sodium and/or potassium hydroxides to the bulk electrolyte.

33. (new) The method as claimed in claim 28, wherein the predetermined position is in close proximity to the metal structure, wherein the positioning of the metal coupon is effected by moving the metal coupon through a passage.

34. (new) The method as claimed in claim 28, wherein the electrolytic environment is an aqueous solution selected from the group consisting of: a subsurface soil electrolyte, lakewater, seawater, or a process liquor.

35. (new) The method as claimed in claim 28, wherein the cathodic protection indication includes pH of the polarized film measured in the crevice at the metal surface of the coupon.

36. (new) The method as claimed in claim 28, wherein the cathodic protection indication includes electric potential of the polarized film measured in the crevice at the metal surface of the coupon.

37. (new) The method as claimed in claimed 1, wherein the at least two cathodic protection indications include pH and electric potential of the protective film measured in the crevice at the metal surface of the coupon.

38. (new) The method as claimed in claim 37, further comprising:

measuring an electric potential of the film proximate to the metal coupon and proximate to and outside the crevice; and

comparing, automatically, the measured electric potential proximate to the metal coupon and outside the crevice with respective predetermined values to provide further comparisons;

wherein the steps of adjusting, automatically, the application of the cathodic protection agent is also in response to the further comparisons.

39. (new) The method as claimed in claim 28, wherein the metal coupon includes first and second opposing flanges joined by a web, such that the simulated crevice is defined by the space between the first and second flanges.

40. (new) The method as claimed in claim 29, wherein the cathodic protection agent is adjusted automatically by either increasing or decreasing protective current so that the polarized potential of the surface remains within the selected minimum and maximum limits in order to prevent corrosion of an iron or steel surface.

41. (new) The method as claimed in claim 29, wherein the cathodic protection agent is adjusted automatically by the current applied potential sensed outside of the coupon crevice to maintain the potential between the selected predetermined minimum and maximum potential limitations.

42. (new) The method as claimed in claim 29, wherein the cathodic protection agent is adjusted automatically by the polarized potential of the protective film sensed in the coupon crevice at the metal surface to maintain the

selected minimum polarized potential limitations of about –900mV (CSE) and maximum of about –1200mV (CSE) in order to prevent corrosion of the iron or steel surface.

43. (new) The method as claimed in claim 42, wherein the cathodic protection agent is further adjusted automatically by the pH sensed in the coupon crevice to increase the pH of the protective film produced at the metal surface sensed in the coupon crevice above 10 and maintain the pH between a minimum of about 11 to a maximum of about 12 in order to prevent corrosion of the iron or steel surface.

44. (new) The method as claimed in claim 29, wherein the cathodic protection agent applied to iron or steel structures is adjusted hierarchically, by adjusting, initially, the current to satisfy the permissible range of potentials, thus overriding adjustments based on pH until the pH of the protective film is above pH 10. Then, either of these two indicators controls, automatically, the potential/pH equilibrium required for corrosion prevention of an iron or steel surface.

45. (new) The method as claimed in any of claims 41, 42, or 43, wherein when the selected minimum or maximum potential and/or pH limitations of either indications are reached, all other indications are automatically overridden to limit further increases or decreases in protective current and an audible, visual or electronic alert is effected.

46. (new) The method as claimed in claim 29, wherein the potential and pH criteria for each different metallic surface should be selected to match predetermined levels for automatic control of the cathodic protection agent for corrosion prevention as are known by those who are specialized in this art.